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EXAMINER

LUU, THANH X

ART UNIT PAPER NUMBER

2878

DATE MAILED: 07/22/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/478,372

Applicant(s)

NAKAMURA, KENJI

Examiner

Thanh X Luu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This Office Action is in response to amendments and remarks filed April 30, 2002. Claims 6-17 are currently pending.

Claim Objections

1. Claim 6 is objected to because of the following informalities:

In claim 6, line 12, "the first image" lacks proper antecedent basis. Examiner believes Applicant intended to claim --the first object image--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 6-17 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claims 6-10, there is insufficient support in the specification for an embodiment in which a position detector detects a position of a first portion of the second object image relative to the first object image based upon the second photoreception signal group and the first photoreception signal group and detects a position of a second portion of the second object image relative to the first object image based upon the third photoreception signal group and the first photoreception signal

group. Pages 19 and 20 of the specification simply state position detection between signal groups not object images. Figure 7 shows three object images. Figure 8 shows two object images, but does not show the position of a first and second portion of the second object image being detected based upon second and first signal groups, and third and first signal groups.

Regarding claim 10, there is insufficient support in the specification for an embodiment in which a distance corrector corrects a distance between object images formed on the first and second area sensors to a corrected distance that would be obtained if the second object image were oriented at a predetermined angle and calculates the object distance using the corrected distance.

Regarding claims 11-17, there is insufficient support in the specification for an embodiment in which a position detector detects a position of a portion of the object image relative to another portion of the object image based upon the second photoreception signal series and the first photoreception signal series.

In response, Applicant should cite to sections of the specification in which such embodiments are sufficiently supported, otherwise, Examiner reminds Applicant that no new matter may be added.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 6-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 6 and 9, it is unclear in its given context what "an angle of the second object image incident upon the second area sensor" refers to. That is, what reference point is the angle measured from? Is it an angle of incidence of the light? At least from the Figures, it appears that Applicant intended to claim an angle at which the object image is tilted with respect to an axis of the second area sensor.

Regarding claim 7, it is unclear how an angle of the second object image relative to the area sensors is detected based on the relationship of the optical system and the area sensors when the second object image is only incident on the second area sensor.

Regarding claims 9 and 10, "analogous object images" lacks proper antecedent basis.

Claim 8 is indefinite by virtue of its dependency on an indefinite claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 6-9 and 11-17, as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Hasegawa et al. (U.S. Patent 5,715,043).

Regarding claims 6-9, Hasegawa et al. disclose (see Figures 1, 2, 10 and 13) an image sensing device comprising: a first optical system (1R) for forming a first object image (5R); a first area sensor (4R) arranged in the approximate image forming plane of the first optical system for receiving light of the first object image; a second optical

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system (1L) for forming a second object image (5L); a second area sensor (4L and 4LA) arranged in the approximate image forming plane of the second optical system for receiving the light of the second object image; a signal reader for reading a first photoreception signal group from the first area sensor, a second photoreception signal group from the second area sensor and a third photoreception signal group from the second area sensor (see Figure 13; signals output from 4R, 4L and 4LA); a position detector (see column 9) for detecting a position of a first portion of the second object relative to the first object image (IMAGE DISTANCE; see Figure 2) based upon the second photoreception signal group and the first photoreception signal group and for detecting a position of the second portion of the object image relative to the first object image based upon the third photoreception signal group and the first photoreception signal group; and an angle detector (see Figure 13) for detecting a magnitude of an angle of the second object image as claimed. Hasegawa et al. further disclose (see Figure 13) the second and third photoreception signal groups include reception signals from a same part of the second area sensor (4L and 4LA). Hasegawa et al. also disclose (see Figures 2, 13 and column 9) calculating an object distance (L) based on a distance between object images formed on the first and second area sensors.

Regarding claims 11-14, Hasegawa et al. disclose (see Figures 1, 2, 10 and 13) an image sensing device, comprising: an optical system (1) for forming an object image (5R and 5L) a first sensor array (4R) arranged in the approximate image forming plane of the optical system for receiving the light of the object image; a second sensor array (4L) arranged in the approximate image forming plane of the optical system for

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receiving the light of the object image; a signal reader (see Figure 13) for reading a first photoreception signal series from the first sensor array and a second photoreception signal series from the second sensor array (output from 4R and 4L); a position detector for detecting a position (see column 9) of a portion (5R) of the object image relative to another portion (5L) of the object image based upon the second photoreception signal series and the first photoreception signal series; and an angle detector (see Figure 13) for detecting a magnitude of an angle of the object image relative to the sensor arrays based on the detected position. The angle is inherently based on relative positional relationship of the sensor arrays since the angle is measured relative to the arrays. Hasegawa et al. further disclose (see Figure 1) the second sensor array is parallel to the first sensor array and (see Figure 13) the image sensing device is used in a distance measuring device.

Regarding claims 15-17, Hasegawa et al. disclose (see Figures 1, 2, 10 and 13) an image sensing device, comprising: an optical system (1) for forming an object image (5L and 5R); an area sensor (4) arranged in the approximate image forming plane of the optical system for receiving the light of the object image; a signal reader (see Figure 13) reading a first photoreception signal group from the area sensor and a second photoreception signal group from the area sensor; a position detector for detecting a position of a portion (5R) of the object image relative to another portion (5L) of the object image based upon the second photoreception signal group and the first photoreception signal group; and an angle detector (see Figure 13) for detecting a magnitude of an angle of the object relative to the area sensor based on the detected

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position. The angle is inherently based on relative positional relationship of the area sensor since the angle is measured relative to the sensor. Hasegawa et al. further disclose (see Figure 13) the image sensing device is used in a distance measuring device.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hasegawa et al.

Regarding claim 10, Hasegawa et al. disclose (see Figure 24) correcting for distance errors between object images. Hasegawa et al. do not disclose the specific type of correction as claimed. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to correct a distance based upon known predetermined values as claimed in the apparatus of Hasegawa et al. to obtain better and more accurate detection.

Response to Arguments

10. Applicant's arguments filed April 30, 2002 have been fully considered but they are not persuasive.

Applicant argues that line sensors are not area sensors. Such an interpretation is not correct. A line encompasses an area, thus, line sensors are area sensors.

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Applicant further states that overlapping photoreception signals are a feature of area sensors; however, such language is not present in the claims. Thus, as set forth above, this final rejection is proper.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh X. Luu whose telephone number is (703) 305-0539. The examiner can normally be reached on Monday-Friday from 6:30 AM - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached on (703) 308-4881. The fax phone number for the organization where the application or proceeding is assigned is (703) 308-7722.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

txl
July 16, 2002


Que T. Le
Primary Examiner